4022

PPG Industries, Inc.
Box 191 New Martinsville, West Virginia 26155 USA Telephone: (304) 455-2200

Natrium Plant
Chemicals Group

June 15, 1995

Ms. Mary F. Beck (3HW52)
U. S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Ms. Beck:

Re: Corrective Action and Waste Minimization Permit
WVD004336343

Attached are three (3) copies of the Soil Gas Investigation Report for Areas 4, 5, 6 and 7. PPG made the decision to proceed with the Phase I, Task 2 of the RFI as an interim measure to expedite the RFI/CMS process.

The primary objectives of the soil gas survey were to evaluate potential release areas of VOCs, assess the vertical and horizontal extent of any appreciable VOC concentrations in the vadose zone and to provide the data needed to develop a focused confirmatory soil boring and sampling plan. These objectives were achieved.

Sincerely,

Kenneth S. Walborn

Kenneth S. Walborn

Attachments

cc: Mr. W. John Janicki
West Virginia Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25301

Hand delivered
6/16/95
MFB

4027

PPG Industries, Inc.
Box 191 New Martinsville, West Virginia 26155 USA Telephone: (304) 455-2200

Natrium Plant
Chemicals Group

CERTIFIED MAIL RETURN RECEIPT REQUESTED

May 15, 1995

Ms. Mary F. Beck (3HW52)
U. S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Ms. Beck:

Re: Corrective Action and Waste Minimization Permit
WVD004336343

PPG received the comments developed by A. T. Kearney, Inc. on the RCRA Facility Investigation Workplan submitted December 10, 1993. We have met with ICF Kaiser who prepared the document and reviewed the comments. We have no disagreement with many of the comments.

We do however, feel there are a few issues which could be clarified by some explanation. This would allow us to come an agreement on the future scope of the workplan.

We would be prepared to come to Philadelphia after the first of June to review our comments and clarify the issues of concern. This meeting will allow everyone to fully understand the workplan and expedite the approval process.

PPG would like to express our thanks for the opportunity to review these comments in advance of the formal issue.

Sincerely,

Kenneth S. Walborn

Kenneth S. Walborn
Manager, Environmental Control

cc: Mr. W. J. Janicki
Environmental Analyst
WV Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25301

4029

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

April 21, 1995

Kenneth S. Walborn
Manager, Environmental Control
PPG Industries, Inc
Box 191
New Martinsville, WV 26155

Dear Mr. Walborn:

The Environmental Protection Agency's (EPA) contractor, A.T. Kearney, Inc. has reviewed the *RCRA Facility Investigation Work Plan*, December 10, 1993, and related documents for the Natrium Plant and has submitted to EPA the enclosed final deliverable. While the comments have been reviewed and appear reasonable, they have not been compared to the reviewed Work Plan completeness and accuracy. In our April 20, 1995 telephone conversation you agreed to review the Work Plan comments and, within a month or so, indicate with which comments you concur and with which comments you disagree. While a response to individual comments is not required at this time, it would be helpful to explain why you disagree with comments (if any).

The Work Plan comments recommend expanding the analyte list for some solid waste management units and specify the TAL or TCL lists. Please note that while the lists themselves may be appropriate, the associated Superfund CLP procedures may not produce quantitation acceptable to RCRA. Enclosed are lists frequently included in RCRA Permits for Corrective Action indicating practical quantitation limits and suggested methods.

Also enclosed are final Agency comments on the Work Plan regarding QA/QC. The checklist notes minor comments which need to be addressed at a future date.

If you have any questions please call me at 215-597-7239.

Sincerely,

Mary F. Beck

Mary F. Beck
General States RCRA
Programs Section

encl: 3
cc: John Janicki, WVDEP

4020

SUMMARY OF RESPONSES TO USEPA COMMENTS

PPG NATRIUM WV RFI WORK PLAN

Work Plan Dated: December 10, 1993
USEPA Comments Dated: April 21, 1995

Response to Comment No.	Agree	Disagree	Other [1]	Short Description of Comment
1, 37, & 58	X			Content of deliverables to USEPA
2a,[2] 35, 36 & 41	X			Provide more detail on risk assessment screening criteria
2b, 4, 42 & 60a		X		Biased sampling/impact on risk assessment
3, 49b, 50a, & 67a		X		Timing of nature and extent investigation
5	X			Further justification - TCL list
6	X			Add DNAPL discussion
7, 8a, 30, 32, 43 & 57b		X		Reorder hydrogeologic tasks
8b	X			Assurances regarding current and future groundwater prevention well locations/pumping scheme
9a	X			Technically sound principles first, cost-effectiveness second
9b	X			The RFI shall identify all aquifers at the site.....etc.
9c		X		Risk based values vs. natural background
9d		X		Data validation
10		X		Add information to Table 1.1
11a & 28		X		Add more information on history/Lessee's
11b	X			State leased properties were evaluated in the DOCC
12	X			Add map showing 100 year flood plain
13	X			Describe/label two streams
14a		X		Data inadequate to justify conclusions
14b	X			Add information on characterization of perched zones
15		X		Evaluation criteria to be used was not included. Include well construction information in the work plan.
16	X			Indicate production well abandonment method.
17	X			Discuss suitability of wells with screens in excess of 10 feet.
18			X [a]	Revise work plan to indicate type of damage/ potential for cross-contamination.
19			X [a]	Add water level data to Table 3-2

SUMMARY OF RESPONSES TO USEPA COMMENTS

Response to Comment No.	Agree	Disagree	Other [1]	Short Description of Comment
20	X			Add brine well maintenance procedures
21 & 45		X		Assess surface water and sediments
22		X		Revise work plan to further evaluate perched zones
23	X			Revise Figure 3-15/text on page 3-36
24		X		Provide more data on clay layers/perched groundwater
25	X			Revise the statement "the area is underlain by 10 to 15 feet of clay and sand clay".
26		X		MCB sampling events/results not discussed
27	X			Provide additional historic information on hydraulic containment
29			X [b]	Revise work plan to discuss scope of interim measures work plans
31, 40 & 67b	X			Discrepancies exist between Tables 4-1 and 5-6 through 5-69
34		X		Primary purpose of risk assessment
38	X			Provide for assessment of off-site groundwater receptors
39	X			Typographical error "LC 50"
44	X			Provide procedures for calculating vertical gradients
46 & 65	X			Include additional rationale for sewer/trenches/drains soil sampling
47	X			Revise data needs for sewers/trenches/drains to include upgrades....etc.
48			X [c]	Add TCL VOCs & SVOCs to SWMU 2-2 list
49a	X			Collect TCL VOCS and TCL SVOCs at SWMU 3-1
50b	X			Collect TCL VOCs and TCL SVOCs at SWMU 3-2
51		X		Revise work plan to define production well effects at SWMU 4-1
52	X			Collect BTEX at AOC 5-3A
53		X		Revise work plan to provide more information on spills, etc. at AOC 8-4A.
54	X			Expand analytical list for SWMU 9-2
55	X			Typographical error
56		X		Steady-state conditions cannot be assumed.
57a	X			Change last statement in 2nd paragraph of page 4-112

SUMMARY OF RESPONSES TO USEPA COMMENTS

Response to Comment No.	Agree	Disagree	Other [1]	Short Description of Comment
59	X			Relocating sample points should include ICF Kaiser and/or USEPA approval
60b & 81	X			Samples should be taken under paved materials
61			X [d]	Provide additional detail on soil gas survey
62			X [d]	Provide criteria on relocating samples based on soil gas.
63		X		Monitoring well evaluation criteria are not provided
64	X			Provide additional discussion on how data collected under Task 4 will be used.
66		X		Include Task 9 in Section 5.
68			X [d]	Provide rationale for soil gas confirmatory soil samples
69	X			Add PAHs to SWMU 2-1 and SWMU 9-1 lists
70	X			Add PAHs to AOC 5-2A list
71	X			Show SWMU 5-6 boring locations and add TCL SVOCs and TCL PCBs, and metals to the list
72	X			Show J-3, J-4 and J-5 boundaries on Figure 5-13
74 & 79	X			Collect geotechnical samples at SWMU 6-1 or SWMU 6-3
75	X			Include information on AOC 6-1A sump
76	X			Collect additional biased samples at SWMU 8-18.
77	X			Collect waste samples at SWMU 9-2.
78			X [c]	SWMU 10-1 investigation is incomplete
80	X			Modify text/figures for AOC 14-2A sampling
82	X			Add sample locations to Figure 5-52
83		X		Bias Phase III samples toward "hot spots".
84	X			EPA must approve modifications to well locations
85	X			Add locations MW-224S, MW-225S, and MW-226S
86	X			Revise work plan to include an assessment of hydraulic position of background wells
87		X		Install perched wells in Area 1 to establish background
88		X		MW-202 and 202D may not be appropriate for background wells

SUMMARY OF RESPONSES TO USEPA COMMENTS

Response to Comment No.	Agree	Disagree	Other [1]	Short Description of Comment
89	X			Further discuss heaving sands
90	X			Further discuss use of 10-inch HSAs
91	X			Remove the 150 gallon maximum for well development
92	X			Develop wells to 5 NTU or until 5 well volumes are received
93	X			Use a dedicated or pre-decontaminated bailer
94	X			State whether ICF Kaiser is the prime contractor.

Notes:

(1) No need to revise Work Plan for the following reasons:
- (a) PPG is planning to initiate this work as soon as quotes can be evaluated.
- (b) Interim measures work referenced in this comment was already completed. PPG is in the process of finalizing the report for submittal to USEPA.
- (c) PPG completed the investigation of this SWMU under a voluntary accelerated schedule. PPG is in the process of finalizing the report for submittal to USEPA.
- (d) PPG completed the soil gas survey under a voluntary accelerated schedule. PPG is submitting the report with this response to comments letter.

(2) Some comments were divided into parts for response purposes.

SPECIFIC RESPONSES

PPG Responses to USEPA Comments
PPG Natrium WV RFI Work Plan

USEPA Comment No.	Specific PPG Response
1., 37., and 58.	PPG will provide additional detail on the scope and content of the documents submitted at the end of each phase. Essentially the reports at the end of each phase will contain background information, the purpose of each task in the phase, the procedures followed to complete each task, the results and conclusions. The submittals will also contain details for the next phase of work (if needed). USEPA will clearly be involved in the decision process for deciding which units need no additional investigation. This will be stated explicitly in the Work Plan. The overall RFI schedule is critically dependent upon timely EPA review and approval of the reports submitted at the end of each phase.
2a., 35., 36., and 41.	The first part of comment #2 is valid and specific criteria for determining which sites go on to Phase III will be provided in the Work Plan. In general terms, the process for determining whether a particular SWMU/AOC will undergo Phase III will be extremely conservative (i.e., the process will overestimate potential risks to ensure SWMUs/AOCs are not prematurely dropped from this RFI). PPG agrees to provide more information on the quantification and conservatism of the risk assessment approach. Additional text will be added describing the risk screening process to be used to prioritize sites for further investigation. The intent of the phased risk assessment approach is summarized as follows: Phase II. Compare worst-case data to risk-based screening criteria. If all detected constituents are less than these conservative criteria, then the site would be recommended for no further investigation and no further action. If the concentrations detected exceed risk-based screening criteria by a wide margin, then further investigation would be recommended. If the concentrations of a few chemicals are in excess of the criteria by a small margin, then the site would be put on a lower priority for further investigation. The latter group of sites may be recommended for a more detailed risk assessment to determine the need for further investigation/action. At this time, the risk-based screening criteria are expected to include the following: ■ EPA Region III Risk-based Concentrations for soil and water. ■ Soil criteria for groundwater protection based on a screening leaching model.

2b., 4., 42., and 60a.

PPG disagrees with the second part of comment #2. If we understand the comment A. T. Kearney believes that a risk assessment conducted using data that were collected in an unbiased manner (i.e., randomized in some way) may not indicate "actual risks associated with potential contamination at the unit." On the contrary, it is well recognized that the reverse is the case; namely, that data collected in a biased manner may not accurately represent true risks. (USEPA 1989a, "Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual [Part A]", and USEPA, 1992, "Guidance for Data Useability in Risk Assessment [Part A]".

Pre-supposing that all areas of potential contamination within a unit are identified, then data collected in a biased manner (i.e., more samples collected in the proximity of the source area[s] within a unit) typically result in an overestimate of the average concentration present across the entire unit. From a risk assessment perspective, the goal of the sampling program is to characterize the average concentration to which a potential receptor may be exposed (USEPA, 1989 "Risk Assessment Guidance for Superfund [RAGS]", page 6-19). If the source area comprises only a portion of the total area to which a potential receptor may be exposed, which is most often the case, then samples should be collected from the entire exposure area and not just around the source area. Samples collected predominantly from the source area lead to an overestimation of the average concentration unless an area weighting approach (e.g., Kriging) is taken to calculating the average.

The reviewers seem to have concluded that PPG is planning unbiased sampling. This is not the case. The approach to be taken in the phased RFI for the Natrium Plant is to take biased samples during Phase II. Some sampling will be done on a predetermined basis (i.e. surface samples and 3-5 ft-bgs), however, samples will also be collected on a biased basis as indicated on page B-13 of the QAPP which states samples will be screened with a PID or FID and intervals to be sampled and analyzed will be selected based on PID/FID readings, visual observations (staining), and stratigraphy. The results from these biased samples will be evaluated using conservative risk screening approaches (discussed in response to comments 2a, 25, 26, and 41), thereby ensuring that site prioritization for further investigation is conservative. Risk estimates based on these data will be conservative overestimates because the data are biased. True risks from the units are likely to be significantly lower than those estimated using these data.

To clarify PPG's plan for biased sampling, PPG will add some text to clarify the work plan. Text will be added to allow for relocating borings to positions where staining is observed at surface during implementation of the RFI for those SWMUs for which this approach would make sense (i.e. active SWMUs such as ASTs that have potential for a surface release). Also, as indicated in the QAPP, OVM screening will be considered when selecting samples for analysis. The use of OVM screening to select samples for laboratory analysis will be clarified in the work plan.

Restrictions were considered during development of the work plan and will also be considered during implementation of the RFI (i.e. positions of samples will be adjusted if necessary to accommodate restrictions).

3., 49b., 50a., and 67a.

PPG believes the proposed approach is a technically sound. Any SWMUs that warrants a nature and extent investigation will undergo such an investigation during Phase 3. The results of tasks conducted under earlier phases (i.e. Task 2, the soil gas survey or Task 7, confirmatory test borings and soil sampling) will be used to help guide the nature and extent investigation conducted under Task 3 by refining sample locations, depths, and analytical parameter lists.

5.

PPG agrees the use of the TCL could use some further justification. At most of the SWMUs/AOCs the TCL will be adequate, but PPG agrees the list should be expanded in areas that may have produced unknown organic compounds (i.e. Marshall Plant).

6.

PPG agrees that some discussion of DNAPL is appropriate in this work plan. The work plan will be revised to include the following text:

> "The deep monitoring wells, which are to be screened above bedrock, will not only be used to evaluate constituent concentrations dissolved in groundwater, but will also be used to evaluate the potential for DNAPL. DNAPL, if present, would have the potential to preferentially accumulate and migrate along the bedrock surface. This migration potential will be considered in conjunction with potential source areas, bedrock configuration, and the results of earlier tasks prior to finalizing the location and installing the deep monitoring wells during Task 11."

Also, the potential for DNAPL will be considered during the evaluation of the dissolved constituent concentrations in groundwater (i.e., if dissolved concentrations are found outside the limits of hydraulic containment, the potential presence of DNAPL will be evaluated).

7., 8a., 30., 32., 33., 43., and 57b.

PPG disagrees with the suggestion that the work in Task 13 be performed earlier in the RFI. Tasks 4 and 5 will provide the data necessary to evaluate hydraulic containment early on in the RFI (i.e. groundwater elevation maps will be generated for various pumping scenarios). The location of the groundwater monitoring wells installed under Task 12, will ultimately be determined based on the results of earlier phases (i.e. Task 2, Soil Gas Survey, Task 4 Gauge Production Well Flow Rates, Task 5, Monitor Groundwater and Surface Water Fluctuations, Task 7, Confirmatory Test Borings and Soil Sampling, and Task 9 Groundwater Flow Modeling). We firmly believe that Task 13 should be done after the installation and sampling of new groundwater monitoring wells so that the new wells can be incorporated into the Task 13 constant flow rate pumping test as monitoring points. Also, the results of gauging well flow rates (Task 4), monitoring groundwater fluctuations (Task 5), the groundwater flow model (Task 9) and groundwater sampling (Task 12) can be considered

when finalizing the design of the constant flow rate pumping test that will be conducted under Task 13.

PPG understands USEPA's concern and the importance of confirming hydraulic containment as early as possible. Therefore, PPG is proposing to initiate the tasks related to the groundwater investigation (2, 4, 5, 8, 9, 11, 12, 13) as soon as quotes can be evaluated. PPG believes accelerating the schedule for those tasks will address USEPA's concern of confirming hydraulic containment early on while at the same time allowing PPG to proceed in how we believe is the most beneficial technical manner.

8b. PPG agrees that the evaluation under Tasks 4 and 5 should include a discussion/assurances of future well pumping rates and schemes.

9a. First Bullet - Technically sound principles will be applied during the RFI.

9b. Second Bullet - Further investigation will be conducted to evaluate groundwater flow in RFI Tasks 4, 5, 9, 11, 12, and 13.

9c. Third Bullet - PPG takes exception with the statement that all areas of potential contamination above natural background levels may require further investigation regardless of the potential risk. The over-achieving goal of the RFI is to collect sufficient information to support an informed risk management decision regarding the need for corrective action. It is not to completely characterize the entire site to background levels. As long as the sampling program in Phase II is targeted at the areas of highest contamination, if a SWMU passes the conservative risk screening for Phase II (discussed in response to comment 20, 35, 36, and 41), then it is reasonable conclude with confidence that the SWMU poses no significant risk, and requires, no further investigation or corrective action. Therefore, additional investigation provides no useful information for risk management purposes.

The RFI will identify the nature and extent of contamination posing risk to human health or the environment. This approach is acceptable because corrective action is warranted for and will be performed on only those SWMUs/AOCs that exhibit unacceptable risk.

9d. Fourth Bullet - PPG does not believe it is necessary to validate all analytical data, however, the appropriate data needed to validate the data if a future question arises will be collected and processed so that it can be validated at a later date. All data used to define the limit of contamination will be validated, but only a reasonable percentage of data within a zone of known contamination need to be validated.

10. Tables 4-1 and 4-2 in the approved DOCC report contain the information requested in this comment. It is not necessary to repeat this information in the work plan.

11a. and 28. PPG provided all known information in the DOCC and RFI work plan on

former uses of the facility, tenants, and lessees. Operations information for leased properties is in the Appendix A of the DOCC.

11b. Text will be added to the RFI work plan stating that the leased properties were evaluated in the DOCC.

12. PPG will provide a map of the flood-plain showing features such as surface impoundments and landfills; however, storm sewers or process drains will not be located until RFI Task 6 is completed.

13. PPG will describe these streams as requested and label them on a map.

14a. PPG disagrees that data are not adequate to support the conclusions presented to date. The additional information collected during the RFI will verify or deny these conclusions. Additional information needed to define the characteristics of the aquifer and the effects of production well use is planned early in RFI under Tasks 4 and 5.

14b. PPG agrees to add some additional detail for characterizing the perched zone. Perched zones will not only be evaluated during well installations mentioned in the comment, but also by the borings that will eventually be installed at the SWMUs/AOCs. Slug tests will be performed on selected perched zone wells and a selected number of perched wells will be monitored during the constant flow rate pumping test of the alluvial aquifer.

15. PPG disagrees that the criteria used to perform the evaluations was not provided. Sections 5.2.3 and 5.3.2 discuss how the condition of wells and their suitability in providing data in the investigation will be evaluated. PPG agrees that tables summarizing construction details, aquifer designation, screened intervals, etc. will need to be constructed. This will be done under RFI Task 3.

16. Production well abandonment will be evaluated under Task 3 and a determination will be made as to the adequacy. Appropriate actions will be taken if the abandonment procedure is found to have been inadequate. Task 9 (Groundwater Flow Model) will include data from all sources that are deemed to be of sufficient quality.

17. Some discussion on the suitability of monitoring wells with screens in excess of 10 feet will be added to the work plan. As indicated in the comment, Draft Technical Guidance suggests that generally screen lengths should not exceed 10 feet. Screen lengths of more than 10 feet in the main aquifer at this facility are not inappropriate due to the high degree of vertical continuity of the sand and gravel outwash deposits that comprise the aquifer. PPG anticipates the existing wells will provide useful and accurate information that is representative of aquifer conditions, however, the use of these wells will ultimately be determined under Task 3 of the RFI.

Screen lengths of wells installed during the RFI will be dependent upon the geology encountered. PPG is planning to install well clusters to allow an evaluation of shallow versus deep groundwater quality and also to assess vertical gradients.

18. Task 3 will address the information requested in the comment. The work plan does not need to be revised because PPG is planning to initiate Task 3 in as soon as quotes can be evaluated.

19. PPG will revise the statement on page 3-11 to read "Pumping of industrial wells has lowered groundwater beneath the center of the plant to levels below the river stage, thereby reversing the natural gradient and inducing recharge into the alluvial aquifer to west of the plant's production wells." Water level data will be more useful when used in conjunction with the well construction details collected under Task 3 (i.e. the water level should not be the only criteria for evaluating the usefulness of a particular well). PPG is planning to initiate this work "early."

20. The work plan will be revised to clarify the comment procedures used during brine well maintenance.

21. and 45. Surface water and sediments will be evaluated only if RFI on-site data concludes there is a potential impact (i.e. the groundwater investigation disproves the hydraulic containment theory or perched zones are found to be discharge to surface water), or if the results of the current NPDES river ecological study determine further evaluation of surface water and sediments is warranted.

22. The data required to adequately evaluate perched groundwater conditions in these areas will be gathered during the RFI through monitoring well installations and borings.

23. PPG will revise the cross-section and/or text as appropriate, the cross-hatched area will be defined, and a discussion of how the water table level was inferred will be included.

24. The data gathered during the RFI will further define any layers and their relevance to contaminant transport, as well as perched groundwater.

25. The text will be revised to indicate MW-7 and MW-8 reflect conditions in the northern corner of the area.

26. The RFI work plan does discuss the sampling results on page 3-45. However, PPG agrees to add some language that states that past data will be used in conjunction with the results of Phase 1 to select Phase 2 boring locations. In this case, the selection of the future borings will utilize both the results of the soil gas survey and the existing results to optimize (i.e. bias) Phase 2 sampling.

27. PPG will include additional information on historical pumping. Future

pumping scenarios will be evaluated during the RFI through both data collection and groundwater modeling.

29. PPG has completed these investigations and is in the process of finalizing the report for submittal to USEPA. The work plan will be revised to state the work has been completed and a report is being finalized.

31., 41., and 67b. PPG agrees to review these sections and tables, however, discrepancies may exist between Table 4-1 and tables in Section 5 because existing data may fulfill some of the analytical data needs for specific SWMUs/AOCs. Also, engineering data collected from one SWMU/AOC may have been deemed applicable to another SWMU/AOC and therefore was not included in Section 5 tables.

34. According to USEPA's RAGS (page 1-1), the primary goal of a site risk assessment is "to provide a framework for developing the risk information necessary to assist decision-making at remedial sites." RAGS further states (page 3-1) that the risk assessment "needs to focus on providing information necessary to justify action at a site and to select the best remedy for the site" and that it is important to recognize that information should be "developed only to help EPA determine what actions are necessary to reduce risks, and not to fully characterize site risks or eliminate all uncertainty from the analysis." Risk assessment is a tool for making sound risk management decisions. It is not an end in itself.

Based on EPA guidance, we believe the stated purpose of the risk assessment for the Natrium plant is appropriate. However, additional text will be added indicating that the objectives include accurate characterization of potential risks to human health and the environment.

38. The Work Plan will be revised to indicate that off-site groundwater exposure pathways will be evaluated contingent upon the results of the assessment of hydraulic containment.

39. The typographical error will be corrected.

44. Text will be added describing the procedure for determining vertical gradients.

46. and 65. PPG will include additional rationale for sample locations at sewers, trenches and drains. PPG would like to include video inspection of sewers, however these have been attempted at the plant in the past and have not provided useful information.

47. Task 6 will be revised to address the data gaps mentioned in the comment.

48. This SWMU was already investigated in conjunction with the interim measures work and samples were analyzed for TCL VOCs and TCL SVOCs.

49a. PPG agrees to test soils at SWMU 3-1 for TCL VOCs and TCL SVOCs.

50b. PPG agrees to test soils at SWMU 3-2 for TCL VOCs and TCL SVOCs.

51. The effects of the production wells in this area will be evaluated at part of the sitewide groundwater evaluation scoped under Tasks 3, 4, 5, 8, 9, 11, 12, and 13. The sitewide groundwater investigation will completely address any plumes in this area.

52. PPG agrees to test soils at AOC 5-3A for BTEX.

53. All information known about releases was provided in the DOCC Report.

54. PPG will expand the list of analytical parameters for SWMU 9-2.

55. The sentence will be changed to state that existing monitoring wells in Area 10 will be used in conjunction with the sitewide network of wells in the evaluation of sitewide groundwater conditions.

56. Information gathered during Tasks 4 and 5 will provide the information needed to evaluate the confidence in which the steady-state model can be used. In the model write-up, a section will be included that qualitatively discusses any variations observed in pumping and how this may impact the groundwater modeling results. The results of the steady-state model in conjunction with findings of other Phase I and II tasks will be used to select the optimum location of monitoring wells to be installed under Task 11. Task 13, the aquifer characterization testing is most appropriately done after the wells are installed so that the new wells can be used to further evaluate site hydraulic containment. By the close of the RFI (i.e. after Phase III is complete), groundwater conditions will have been fully characterized, which is the intent of the RFI groundwater investigation. At the conclusion of the RFI, not only will groundwater have been completely characterized, but a groundwater flow model will be in place for use in the CMS.

57a. PPG agrees that the last statement in second paragraph on page 4-112 should be changed to read "At the conclusion of Phase 1 of the RFI, sufficient information will have been collected to complete the steady-state calibration prior to installing Phase 3 monitoring wells."

59. ICF Kaiser will provide input on alternate locations and document in the field log-book the reasons for moving the sample location. Any movement of sample locations deemed by ICF Kaiser to be a significant change, will be reported to the USEPA Project Manager.

60b. and 81. PPG agrees to add a sentence or two saying that we will bore through concrete or asphalt to collect samples for appropriate SWMUs/AOCs (i.e. active SWMUs/AOCs that could have surface releases), and that sampling will be biased toward breached locations.

61. and 62. RFI Task 2 is complete and the report is being submitted to USEPA with this response to comments document. Most of the confirmatory soil sampling locations proposed in the soil gas investigation report are biased to the areas where the highest concentrations of VOCs were detected in soil gas.

63. PPG disagrees that the evaluation criteria are not provided. Page 5-17 and 5-19 does provide the evaluation criteria. Page 5-20 provides the Field Inspection Form.

64. PPG will include additional discussion in Section 4.6.

66. Section 5 is the field sampling plan and the modeling is not a field task. Task 9 is adequately described in Section 4.5.

68. The soil gas survey has already been completed and soil sampling locations have been selected. Most soil samples are proposed for collection at the areas of highest VOCs concentrations (i.e. hot spots) and some will be collected at areas where VOCs were not detected. The reason for collecting soil samples at areas with highest VOCs will be to evaluate "worst case" conditions. Samples will be collected in areas of non-detect to confirm the extent of contamination defined by the soil gas survey.

Regarding the issue of the adequacy of the proposed sampling approach for risk assessment, refer to the discussion on sampling bias in response to comment 2. As discussed, data will be collected from each SWMU in a biased manner in and around the suspected source(s). For certain SWMUs, such as SWMU 4-1, additional samples may also be collected to determine the nature and extent of contamination. During the risk assessment, the data for each SWMU will be reviewed to determine which data best represent the area of potential exposure. Only those data deemed to represent potential exposure will be included in the quantitative analysis. This applies to all SWMUs/AOCs.

69. PPG agrees to add PAHs to the analytical list for SWMU 2-1 and SWMU 9-1.

70. PPG agrees to add PAHs to the analytical list for AOC 5-2A.

71. The proposed boring locations for SWMU 5-6 have been revised based on the soil gas survey results. PPG agrees to expand the analytical list to include TCL VOCs, TCL SVOCs, TCL PCBs and metals.

72. PPG will revise Figure 5-13 to include the unit boundaries.

73. The work plan will be revised to provide for collection of geotechnical samples at one or both of these units.

74. and 79. The procedure for defining the boundaries will be to use historical knowledge of where the pile was located and the results of the soil gas survey. The statement will be added to the work plan.

75. PPG will revise the text and figure to show the sump and proposed sampling locations.

76. PPG agrees that some additional sampling near sample locations SS-2 and SS-3 appears to be warranted. The work plan will be revised accordingly.

77. PPG will revise the work plan to state samples of the waste will be collected and analyzed.

78. This SWMU is included in the final Draft Interim Measures/Accelerated RFI Report that PPG is currently finalizing for submittal to USEPA. Additional parameters referred to in this comment (i.e., TCL VOCs, TCL SVOCs, and TCLP analyses) were collected during the investigation.

80. The text and figure will be appropriately modified.

82. PPG will add the sample locations to the figure.

83. The sampling conducted under Phase 3 is designed to define nature and extent of contamination posing risk to human health and the environment. Biasing Phase III samples to "hot spots" only, will not lead to a definition of extent.

84. Modifications to proposed placement of monitoring wells will be reviewed with EPA to get concurrence prior to their installation.

85. The well locations will be added to the figure.

86. The work plan will be revised to state that after wells are installed, water levels will be evaluated to ensure that the wells are hydraulically upgradient of production areas. If water levels show those wells are not appropriate for "background," other location(s) will be selected.

87. The discontinuous nature of perched water bodies makes it impracticable to establish background for a given perched zone. Area 1 geologic conditions (colluvial deposits) differ from these closer to the river (flood plain deposits) such as in areas 4 and 5, and therefore may differ naturally.

88. If these wells are hydraulically upgradient of the site they are appropriate for evaluating background regardless of whether they are influenced by recharge from the Ohio River. These wells are located approximately 500 feet from the river and Figure 3-11 indicates the location proposed for these wells is upgradient from the site and the river.

89. Additional information to counter the effect of heaving sands will be discussed and will include: 1) possible use of small diameter augers for

sampling of soils at well boring locations and then redrilling with larger augers after the lithology is defined, 2) possibility of adding water inside augers to keep pressure on subsurface sands to prevent them from entering the augers, and 3) possible use of a sand pump bailer to periodically remove the sands during drilling. If all else fails, alternate drilling method (i.e. cable-tool) will be considered.

90. Additional information will be provided in the work plan. A 10-inch diameter HSA has an inner diameter of 6.25 inches. This will allow sufficient space to tremie-place well construction materials into the annular space between borehole and well casing as the augers are slowly withdrawn from the boring. This will help ensure proper emplacement of well construction materials. Also a brief discussion of using materials other than PVC (i.e. stainless steel or teflon) if NAPLs are present will be included. Combination wells (i.e. stainless steel screened interval and PVC riser) may also be appropriate.

91. The work plan will be revised to state development of wells will be performed until parameters stabilize or until 5 well volumes (inclusive of the annular region) have been removed.

92. The work plan will be revised to read that the wells will be developed until turbidity is 5 NTU, or until a maximum of the 5 well volumes, as discussed in comment 91, have been removed.

93. The work plan will be revised to state that at a minimum, a pre-decontaminated or dedicated bailer will be used for sample collection.

94. The discrepancy will be corrected to state ICF Kaiser has been selected.